



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/713,539	11/14/2003	Kentaro Toyama	3382-66131	7957
26119	7590	06/12/2007	EXAMINER	
KLARQUIST SPARKMAN LLP			WOODS, ERIC V	
121 S.W. SALMON STREET				
SUITE 1600				
PORTLAND, OR 97204				
			ART UNIT	PAPER NUMBER
			2628	
			MAIL DATE	DELIVERY MODE
			06/12/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/713,539	TOYAMA ET AL.	
	Examiner	Art Unit	
	Eric Woods	2628	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 23 February 2007.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-7,9-15,37-42,44,46 and 47 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-7,9-15,37-42,44,46 and 47 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 13 March 2006 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date: _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date: _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Response to Arguments

Applicant's arguments, see Remarks pages 7-18, filed 2/23/2007, with respect to the rejection(s) of claim(s) 1-7, 9-15, 37-42, 44, and 46-47 under 35 USC 103(a) have been fully considered and are persuasive.

Therefore, the rejection of claims 1-7, 9-15, 37-42, 44, and 46-47 under 35 USC 103(a) has been withdrawn in view of applicant's amendments to the claims.

The rejection of claim 47 under 35 USC 112, second paragraph, stands withdrawn in view of applicant's amendment.

However, upon further consideration, a new ground(s) of rejection is made in view of various references as below.

Information Disclosure Statement

The information disclosure statement (IDS) submitted on 2/23/2007 was filed after the mailing date of the Non-Final Rejection on 9/06/2006. The submission is in compliance with the provisions of 37 CFR 1.97. Accordingly, the examiner is considering the information disclosure statement.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Art Unit: 2628

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

Claims 1-4, 14, 37-38, 40, 44, and 46 are rejected under 35 U.S.C. 103(a) as being unpatentable over Miller et al (US PGPub 2005/0185055 A1) in view of Samra et al (US PGPub 2002/0158887 A1) and OpenEXR (Industrial Light & Magic, "OpenEXR: About OpenEXR". 2pp (see applicant IDS)).

As to claims 1, 15, and 44, (method, computer readable medium, and 'means' respectively. Note the additional clause to address the hardware elements in claim 44, e.g. recited 'means')

Miller teaches or suggests the following limitations:

In a computer system, a method of displaying at least one digital image, the method comprising: (Miller [0059-0060] states that the invention can be provided on a personal computer, kiosk, or the like)

-Receiving image information, wherein the image information defines at least the at least one image; (Miller provides versions of the same image with different levels of contrast [0057-0058], where this is described as a **range** of contrasts

Art Unit: 2628

a desired effect [0079] as well as determining more specifically the characteristics of the image in that area [0082]. Samra, an analogous art, is additionally directed to the same problem solving area, namely that of optimizing user interface functionality to allow the user to be more productive.

Miller teaches different levels of contrast side by side ((Figures 3A-3B, [00356-0036,0057-0060]) but that reference and Samra do not expressly teach **high dynamic range digital image and a display having a lower dynamic range than the at least one high dynamic range information**, but the OpenEXR reference does teach these limitations:

-Receiving high dynamic range image information, wherein the high dynamic range image information defines a high dynamic range image; (OpenEXR teaches HDR images that have high dynamic ranges, and shows different versions of the same image at different exposure levels – specifically, on pages 1-2 it specifies that one of the virtues of the OpenEXR file format is that it holds over-range values: “Preserving over-range values in the source image allows an artist to change the apparent exposure of the image with minimal loss of data, for example”).

-A display having lower dynamic range than the high dynamic range image (Open EXR teaches that standard monitors have a 8-10 bit color representation – with standard display formats – page 1, with exposure brightness shown adjusted in the original and adjusted OpenEXR images on page 1)

Art Unit: 2628

OpenEXR clearly provides that having a HDR image makes this easier, in that different levels of exposure (e.g. contrast, which is synonymous) can be shown with no loss of data (page 2). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to combine Miller/Samra with OpenEXR such that the system of Miller could provide multiple images with wider ranges of contrast / exposure from which the user could choose.

As to claim 44, the system of Miller has display means, CPU, as illustrated in Figure 5, where also the Miller reference specifies that a PC or other similar system could be used [0059]. (Display means = display 374, processing means = processor 364, storage or program means = firmware stored in firmware memory 370, executed by processor 364, the program elements are the same as above). Additionally, It would have been obvious to one of ordinary skill in the art at the time the invention was made that such a PC would have means (mouse, etc) to adjust said split pane. The rejection to claim 1 is incorporated by reference in its entirety, inclusive of motivation / rationale.

As to claim 2, clearly the system of Samra would have an **initial position of the movable split position**, where Samra allows the user to adjust the split window position indicator (see Figures 3B-3D, [0079-0082], window 3B user resized to Figure 3C).

As to claim 3, Miller at least suggests ([0035,0057-0058]) that the user would be able to choose the desired contrast parameters between the two

Art Unit: 2628

Claims 5 and 7 are rejected under 35 U.S.C. 103(a) as unpatentable over Miller, Samra, and OpenEXR as applied to claim 1 above, and further in view of Inuiya (US 6,597,468 B1).

As to claim 5, Miller, Samra, and OpenEXR do not expressly teach that the **digital information consists of plurality of files**. However, Inuiya clearly teaches in Figures 5 and 10 that multiple images may be used to capture high dynamic range information (4:45-65), where the tags contain the dynamic range information such that the system will be able to combine them (5:11-35) into one image, where the user may preview (5:45-6:25) the result and combine multiple wide-dynamic-range images.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Miller, Samra, and OpenEXR in view of Inuiya to allow the user to combine multiple images having different dynamic ranges that are of the same object to merge the images to generate the desired resultant **high dynamic range** image and to generate a final output image as taught in Inuiya.

As to claim 7, Miller, Samra, and OpenEXR do not expressly teach this limitation; Inuiya clearly teaches that the different images to be combined into one image have different dynamic ranges and are taken under different exposure conditions (4:40 – 6:30)

Art Unit: 2628

Claim 6 is rejected under 35 USC 103(a) as unpatentable over Miller, Samra, OpenEXR, and Inuiya as applied to claim 5 above, and further in view of Debevec et al (Item X, PTO-892, dated 5/12/2005).

As to claim 6, Inuiya clearly teaches that the different images to be combined into one image have different dynamic ranges and are taken under different exposure conditions (4:40 – 6:30). Further, it is notoriously well known in the art of photography that the main way to create HDR images (Debevec page 3, section 2.1, “The input to our algorithm is a number of digitized photographs taken from the same vantage point with different known exposure durations...”) is to take a series of images of the same scene under different exposure conditions and then to merge them. Therefore, by definition the HDR image so formed will have a wider range than that of the constituent base images. It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Miller, Samra, OpenEXR, and Inuiya to utilize the techniques of Debevec because it provides means for forming a high definition image using conventional cameras, etc (Debevec section 2 et al, page 2.3 partial).

Claims 9-10 are rejected under 35 USC 103(a) as unpatentable over Miller, Samra, and OpenEXR as applied to claim 1, further in view of Photoshop (item U, PTO-892 dated 5/12/2005).

As to claim 9, Miller/Samra/OpenEXR do not expressly teach but Photoshop clearly teaches on page 267 that geometric transformations can be

Art Unit: 2628

applied to portions of an image – e.g. rotate, scale, flip, effects, image size (zoom), et cetera. As an example, Figure 7-1 on page 268 clearly shows some of these changes, with the caption listing various transforms that have been applied to various portions of the shown images. It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine Photoshop with Miller/Samra/OpenEXR so as to allow the user to configure the image as desired and to alter it. It would have been obvious to one of ordinary skill in the art at the time the invention was made to perform the modification of Miller/Samra/OpenEXR in view of Photoshop to (portions of chapters 7 and 9 that are present in that reference) allow the user more control over the selected ranges and brightness adjustments, and additionally Photoshop also clearly teaches that the user can adjust colors, transparency, brightness, etc.

As to claim 10, Miller/Samra/OpenEXR does not expressly teach but Photoshop (pages 453-457) teaches various blending methods that combine multiple layers in an image. Photoshop teaches that images are formed of various layers, in that each modification of an image can be done on a separate layer so that it can be rolled back, removed, or otherwise changed before the layers are finally merged or blended together. Clearly, as on page 61, the separate image could be on a separate layer and then be blended or combined with the main image as set forth on pages 453-457. Motivation and rationale are taken from the above rejection to claim 9.

Claims 11 and 47 are rejected under 35 U.S.C. 103(a) as unpatentable over Miller, Samra, and OpenEXR as applied to claim 1 above, and further in view of Durand et al (Frédo Durand and Julie Dorsey, “Fast Bilateral Filtering for the Display of High-Dynamic-Range Images.”) and Photoshop (item U, PTO-892 dated 05/12/2005.

As to claim 11, Miller, Samra, and OpenEXR do not expressly teach this limitation. Reference Durand teaches in section 2 (page 258) that **tone-mapping parameters are varied across a local object** (e.g. a region selected by the user or similar that has a different parameter than the background image), and further in section 4 on page 260, in the right columns, equations 9 and 10 provide a basis of equations to be solved to distribute a tone map across a local object or surface so that better distribution of color takes place, and clearly the tone map parameters can be varied by changing the coefficients in the equations (see for example sections 3.1 and 3.2 on pages 258-259). Therefore, those filtering techniques (see page 261 – section 5) clearly can be used to vary tone mappings across a surface.

Now, clearly these constitute another class of filters that normally can be applied to HDR images. Clearly, Photoshop teaches that filters can be applied to objects, regions, and layers (portions of chapters 7 and 9 that are present in that reference), such that the filters of Durand could be added to Photoshop in order to give it faster rendering compared to other techniques – in section 6.1 (page 263) Durand teaches that their techniques are much faster than previous

Art Unit: 2628

methods, which would be an obvious motivation to combine with Photoshop – also the techniques of Durand are derivations and improvements on Gaussian blur techniques (section 1.1, page 258, sections 3.1 and 3.2, pages 259-260 among other locations), which would be obvious to augment Photoshop with, since Photoshop uses Gaussian blur filters (on page 364). It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine Photoshop with Miller/Samra/OpenEXR so as to allow the user to configure the image as desired and to alter it, with a final goal of viewing the altered image. It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Miller/Samra/OpenEXR such that the user more control over the selected ranges and brightness adjustments in keeping with Photoshop as cited immediately above.

As to claim 47, this claim is similar in scope to claim 1, the rejection to which is incorporated by reference. The differences are that the claim applies tone mapping to the first image portion to generate the second image portion, wherein the Photoshop / Durand modifications cover that limitation, as in the rejection to claim 11 above which is incorporated by reference in its entirety. Motivation for such combinations is found in the rejections to claim 1 and claim 11 respectively, both of which have been incorporated by reference in their entirety. A mouse clearly has a cursor, and thusly it would have been obvious to one of ordinary skill in the art that since the system of Miller can be implemented on a personal computer, workstation, or the like [0059-0060] that a mouse could be used to change the cursor.

Claims 12 and 42 are rejected under 35 U.S.C. 103(a) as unpatentable over Miller, Samra, and OpenEXR as applied to claims 1 and 37, and further in view of Estrada et al (US PGPub 2003/0142126 A1).

As to claim 12, Miller, Samra, and OpenEXR do not expressly teach this limitation. It is well known in the art to use cached parameters in order to speed up processing of images, and since the parent claim receives data (e.g. high dynamic range image) from somewhere, the techniques in Estrada that are designed to make images load faster (e.g. by storing certain parameters concerning them locally) are clearly relevant. Estrada teaches that images are cached and that their parameters are stored in a database such that even if the image is not cached *per se*, the parameters are cached in the database, such that they can be retrieved if necessary [0058]. Clearly, this technique would be relevant to the same problem solving area as applicant's work, as both are directed towards systems that retrieve and manipulate images and allow a user to browse one or more such images. It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Miller/Samra/OpenEXR in view of Estrada as stated above such that cached parameters are a standard technique in engineering and computer science that is known to speed up performance in almost any circumstances because it minimizes retrieval time and as such all of the above provides the motivation for combination and obviousness as set forth above.

Art Unit: 2628

As to claim 42, it is similar in scope to claim 12, the rejection to which is herein incorporated by reference, wherein as set forth in the rejection immediately above Estrada teaches that the images are stored in an image cache, which clearly meets the recited limitations of the claim. Motivation and combination is also taken from claim 12 above.

Claim 13 is rejected under 35 U.S.C. 103(a) as unpatentable over Miller, Samra, and OpenEXR as applied to claim 1 above, and further in view of Kurashige et al (US 6,219,459).

As to claim 13, Miller, Samra, and OpenEXR do not expressly teach the limitation of this claim. Kurashige teaches a controller that allows the user to adjust parameters concerning the conversion of an input image to a linear drawing style in real-time (4:20-33). Kurashige further teaches in 1:45-67 that the system allows for real-time processing of areas having large differences in contrast (e.g. light level, lamp light and shade are cited as one example). Clearly, the system of Kurashige would allow easier extraction of the region of interest, wherein such a region having a different exposure could then easily be transformed in real time. The Kurashige reference is clearly analogous art, as it is related to image processing, where the above references do so.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Miller, Samra, and OpenEXR with Kurashige because real-time control allows the user instantaneous feedback on how the changes they are effecting change the results, which always allows the user

Art Unit: 2628

more flexibility, particularly when it comes to graphical applications (see Kurashige 4:20-33).

Claim 39 is rejected under 35 U.S.C. 103(a) as unpatentable over Miller/Samra/OpenEXR as applied to claim 38 above, and further in view of Lofgren et al (US PGPub 2002/0154144 A1).

As to claim 39, references Miller/Samra/OpenEXR do not expressly teach this limitation expressly. Miller creates several versions of the same image and shows them to the user, but does not expressly teach this limitation.

Reference Lofgren teaches that a user may create derivative images as shown in Fig. 2 and elaborated upon in [0039] using user terminal 18. Clearly, the user terminal or computer system 18 prima facie contains a derived image-constructing module implemented in software [0039]. Clearly, It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify systems of Miller/Samra/OpenEXR in view of Lofgren to provide adequate controls over image classification, distribution, and the like, could be maintained [0008,0031,0039,0057], the system of Lofgren teaches that digital watermarks are embedded into images in such a way as not to occlude their viewing or affect their visual context [0008-0011], so that owners of such images can control their use, distribution, security, classification, et cetera [0031, 0057]. Clearly, any image thusly processed can have such information embedded into it, e.g. images processed with Miller/Samra/OpenEXR as set forth above.

Art Unit: 2628

Claim 41 is rejected under 35 U.S.C. 103(a) as unpatentable over Miller/Samra/OpenEXR as applied to claim 37 above, and further in view of Fukuhara et al (US 6,546,144 B1).

As to claim 41, References Miller, Samra, and OpenEXR do not in of themselves expressly suggest this particular limitation, although reference Fukuhara teaches in Fig. 8 for example the display of various thumbnails of images after the processing discussed in 2:25-35 wherein the image is split into bands, wherein an intermediate image is formed after the band processing and can be shown to the user as a thumbnail as in Fig. 8 (8:10-17). Clearly, this constitutes forming an intermediate image as recited in the claim. The thumbnails so generated would be useful in their own right for obtaining a better understanding of the frequency content of the components of the overall image. As set forth in Fukuhara 11:22-39, the system can generate intermediate images to facilitate compression of the original image for transmission and storage purposes, and it is obviously applicable to digital still images on digital still cameras as stated. It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Miller, Samra, OpenEXR in view of Fukuhara to allow for better file compression and to view intermediate images as above.

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL.**

Art Unit: 2628

See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Eric Woods whose telephone number is 571-272-7775. The examiner can normally be reached on M-F 8am - 5pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ulka Chauhan can be reached on 571-272-7782. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Art Unit: 2628

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Eric Woods

5/24/2007



Ulka Chauhan
Supervisory Patent Examiner